

WHAT IS CLAIMED IS:

1. A process for manufacturing a flexible wiring board,
comprising the steps of forming an uncured first resin film
including a solvent on a first metal film, pressing bumps on a second
metal film against said first resin film to force said bumps into
said first resin film until the tops of said bumps come into contact
with said first metal film, then patterning at least one of said
first or second metal films, and heat-treating said first resin
film while the surface of said first resin film is at least partially
exposed to cure said first resin film.

2. The process for manufacturing a flexible wiring board
according to claim 1 wherein said uncured first resin film is
semicured by heating it before said bumps are pressed against said
first resin film.

3. The process for manufacturing a flexible wiring board
according to claim 2 wherein said semicuring step takes place at
a temperature lower than the boiling point of said solvent included
in said uncured first resin film.

4. The process for manufacturing a flexible wiring board
according to claim 2 wherein said semicuring step takes place at
a temperature from 80 °C to 300 °C.

5. The process for manufacturing a flexible wiring board according to claim 2 wherein said first resin film is softened by heating it when said bumps are forced into said first resin film.

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6. The process for manufacturing a flexible wiring board according to claim 1 wherein said curing step is followed by ultrasonic treating to apply ultrasonic wave to either one or both of said bumps and said first metal film to connect said bumps to said first metal film.

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7. The process for manufacturing a flexible wiring board according to claim 2 wherein said curing step is followed by ultrasonic treating to apply ultrasonic wave to either one or both of said bumps and said first metal film to connect said bumps to said first metal film.

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8. The process for manufacturing a flexible wiring board according to claim 6 wherein said step of curing said first resin film is preceded by patterning either one of said first or second metal film and patterning the unpatterned metal film after said ultrasonic treating.

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9. The process for manufacturing a flexible wiring board according to claim 7 wherein said step of curing said first resin

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film is preceded by patterning either one of said first or second metal film and patterning the unpatterned metal film after said ultrasonic treating.

5 10. The process for manufacturing a flexible wiring board according to claim 1 further comprising the steps of forming a second resin film on the top surface of said patterned first or second metal film, then pressing bumps on a third metal film against said second resin film to force said bumps into said second resin film
10 until they come into contact with said first or second metal film, then patterning said third metal film and then curing said second resin film.

15 11. The process for manufacturing a flexible wiring board according to claim 2 further comprising the steps of forming a second resin film on the top of said patterned first or second metal film, then pressing bumps on a third metal film against said second resin film to force said bumps into said second resin film until they come into contact with said first or second metal film, then
20 patterning said third metal film and then curing said second resin film.

25 12. The process for manufacturing a flexible wiring board according to claim 8 further comprising the steps of forming a second resin film on the top of said patterned first or second metal film,

then pressing bumps on a third metal film against said second resin film to force said bumps into said second resin film until they come into contact with said first or second metal film, then patterning said third metal film, then curing said second resin film and then applying ultrasonic wave to said bumps on said third metal film to connect said bumps to said first or second metal film.

13. The process for manufacturing a flexible wiring board according to claim 9 further comprising the steps of forming a second resin film on the top of said patterned first or second metal film, then pressing bumps on a third metal film against said second resin film to force said bumps into said second resin film until they come into contact with said first or second metal film, then patterning said third metal film, then curing said second resin film and then applying ultrasonic wave to said bumps on said third metal film to connect said bumps to said first or second metal film.

14. A flexible wiring board comprising a plurality of patterned metal films with a resin film being interposed therebetween among which adjacent two metal films are electrically connected to each other via bumps, wherein said resin film is cured after said bumps are pressed against the top surface of said resin film, and forced into said resin film to electrically connect said two metal films via said bumps.

15. The flexible wiring board according to claim 14 wherein said resin film is cured by heat-treating it while the top surface of said resin film is at least partially exposed between said patterned metal films.

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16. The flexible wiring board according to claim 14 wherein one of said two adjacent metal films connected via said bumps is ultrasonically bonded to said bumps.

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17. The flexible wiring board according to claim 15 wherein one of said two adjacent metal films connected via said bumps is ultrasonically bonded to said bumps.

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